

ANNEX L

UTILITIES

CITY OF HOUSTON

APPROVAL & IMPLEMENTATION

Annex L

UTILITIES

_____, Emergency Management Coordinator

Date

RECORD OF CHANGES

Annex L

UTILITIES

Change #	Date of Change	Entered by	Date Entered

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ANNEX L

UTILITIES

I. AUTHORITY

See City of Houston Emergency Management Plan.

16 TAC, Part 1, Chapter 7 (Gas Utilities), Subchapter B, Rule 7.45 (Quality of Service).

16 TAC, Part 2, Chapter 25 (Electric Service Providers), Subchapter C, Rules 25.52 (Reliability and Continuity of Service) and 25.53 (Emergency Operations Plan).

16 TAC, Part 2, Chapter 26 (Telecommunications Service Providers), Subchapter C, Rules 26.51 (Continuity of Service) and 26.52 (Emergency Operations).

II. PURPOSE

The purpose of this annex is to describe the organization, operational concepts, responsibilities, and procedures to mitigate against, prepare for, respond to, and recover from a temporary disruption in utility services that threatens public health or safety in the local area.

This annex is not intended to deal with persistent shortages of water due to drought or with prolonged statewide or regional shortages of electricity or natural gas. Measures to deal with protracted water shortages are addressed in the drought plans maintained by the City's Public Works & Engineering (PW&E) Department-Utilities Division. Measures to deal with widespread energy shortages are normally promulgated by state and federal regulatory agencies. The City may support utility efforts to deal with long term water and energy supply problems by enacting and enforcing conservation measures and providing the public information pertinent to the local situation.

III. EXPLANATION OF TERMS

Acronyms

DEM	State of Texas Division of Emergency Management
MUD	Municipal Utility District
PUC	Public Utilities Commission
RRC	Railroad Commission of Texas
TAC	Texas Administrative Code
TCEQ	Texas Commission of Environmental Quality

IV. SITUATION & ASSUMPTIONS

A. Situation

1. The Houston area, as noted in the City's Emergency Management Plan, is vulnerable to a number of hazards. These hazards could result in the disruption of electrical power, natural gas service, telephone service and water and wastewater services.
2. The loss of utility services, particularly extended utility outages, could adversely affect the capability of local personnel to respond to and recover

from the emergency situation that caused the disruption of utility service and create additional health and safety risks for the general public.

3. Public utilities are defined as those companies and organizations that are authorized to provide utility services, including electricity, water and wastewater service, natural gas, and telecommunications, to the general public in a specified geographic area. Utilities may be owned and/or operated by a municipality, a municipal utility district (MUD), a regional utility authority or investors.

The public utilities serving our community include:

- a. Electric
- b. Telephone
- c. Natural Gas
- d. Water and Wastewater

Additional information on these utilities is provided in Appendix 1 to this annex.

4. The state and/or federal government regulate most utility providers. State regulatory agencies include:
 - a. The Public Utilities Commission (PUC) for telecommunications companies and most electrical utilities, other than municipal electric utilities.
 - b. The Texas Commission of Environmental Quality (TCEQ) for most water suppliers and wastewater utilities.
 - c. The Railroad Commission of Texas (RRC) for gas utilities.
5. Utilities have emergency operations plans for restoring disrupted service and many maintain emergency operations centers.
6. Extended electrical outages can directly impact other utility systems, particularly water and wastewater systems. In areas where telephone service is provided by above-ground lines that share poles with electrical distribution lines, telecommunications providers may not be able to make repairs to the telephone system until electric utilities restore power lines to a safe condition.

B. Assumptions:

1. In the event of damage to or destruction of utility systems, utility operators will put forward their best effort to restore service to their customers as quickly as possible.
2. A major emergency or disaster affecting a wide area may require extensive repairs and/or reconstruction of portions of utility systems that may take considerable time to complete.

3. Damage to electrical distribution systems as well as water and wastewater systems may create secondary hazards such as increased risk of fire and public health hazards.
4. Each utility will direct and control its own resources. The utility will plan and carry out its own response operations, coordinating as necessary with the City and with other utilities.

V. CONCEPT OF OPERATIONS

A. General

1. In the event of a loss of utility service, the City will assess the possible impact of that loss on public health and safety and take appropriate actions to minimize the impact.
2. The City's Public Works and Engineering (PW&E) department manages and operates the City-owned water and wastewater facilities.
3. Utilities have franchise agreements that require them to provide service to their customers. They have the ultimate responsibility for dealing with utility service outages and to reestablish service in the shortest possible time. Utilities are expected to keep their customers and local officials informed of the extent of utility outages and provide estimates of when service will be restored.
4. The City has identified critical local facilities and established general priorities for restoration of utility service to such facilities. The list of facilities and utility restoration priorities (maintained as a separate document) has been provided to the utility companies that serve those facilities. Examples of critical facilities may include:
 - a. City Hall and City Hall Annex
 - b. Emergency Operations Center (EOC)
 - c. Police and Fire stations
 - d. Hospitals
 - e. Water and wastewater treatment facilities
5. Utility companies may not be able to restore service to all critical facilities in a timely manner, particularly if damage has been catastrophic and a substantial amount of equipment must be replaced or if repairs require specialized equipment or materials that are not readily available. In large-scale disasters, utility companies may have to compete with individuals, businesses, industry, government, and other utility companies for manpower, equipment, and supplies.

B. City Response

1. It is essential to obtain an initial estimate of the likely duration of a major utility outage from the utility as soon as possible after it occurs. Once the estimate is obtained, a determination of the anticipated impact and actions

required to protect public health and safety, and public and private property can be made.

2. Extended utility outages may require the City to take action to protect public health and safety and public and private property. Such actions may include:

- a. Water or Wastewater Outage

- 1) Curtail general water service to residents to retain water for firefighting and for controlled distribution to local residents in containers.
- 2) Arrange for supplies of emergency potable drinking water for the general public and for bulk water for those critical facilities that require it to continue operations.
- 3) If wastewater service is disrupted, arrange for portable toilets and hand washing facilities to meet sanitary needs.

- b. Electrical or Natural Gas Outage

- 1) Operate emergency generators to power water pumping stations, water treatment facilities, wastewater lift stations, wastewater treatment facilities, fueling facilities, and other critical sites.
- 2) During periods of cold weather, coordinate the establishment of shelters for residents who lack heat in their homes.
- 3) During periods of extreme heat, coordinate the establishment of “cooling sites” for residents who do not have air conditioning in their homes.
- 4) Request appropriate volunteer groups to set up mass feeding facilities, as necessary, for those who do not have electrical or gas service and cannot prepare meals.
- 5) Arrange for fuel deliveries to keep emergency generators running at critical City facilities.

- c. Telecommunications Outage

- 1) Request telecommunications providers to implement priority service restoration plans.
- 2) Activate amateur radio support, as needed.
- 3) Request external assistance (e.g., telecommunication providers, the State, etc.) in obtaining additional radios and repeaters or satellite telephones.

d. General

- 1) Isolate damaged portions of utility systems so as to restore service quickly to those areas where systems are substantially undamaged.
- 2) In cooperation with utilities, institute conservation measures. See Appendix 4 to this annex.
- 3) Disseminate public information requesting conservation of utilities and water advisories (e.g., health issues such as a “boil water” advisory for emergency water purification.)
- 4) Coordinate with medical facilities that must relocate patients, residential schools and similar institutions that cannot maintain the required level of service for their clients.
- 5) Assign law enforcement personnel at key intersections if traffic control devices are inoperative.
- 6) Consider increased security patrols and staging fire equipment in areas without electrical or water service.

C. Facilitating Utility Response

1. The City may facilitate utility response by:

- a. Coordinating with utility companies on utility outage areas that have been reported to the City.
- b. Requesting citizens to initiate conservation measures. See Appendix 4.
- c. Coordinating with the utility on priorities for clearing debris from roads which also provides access to damaged utility equipment.
- d. Providing access and traffic control in utility repair areas where appropriate.

2. Large-scale Emergency Situations/Disasters

In large-scale emergency situations which produce catastrophic damage in a limited area (such as a tornado) or severe damage over a wide area (such as a hurricane), utilities are typically faced with a massive repair and rebuilding effort that cannot be completed in a reasonable time without external support. In such circumstances, utilities typically bring in equipment and crews from other utilities pursuant to mutual aid agreements and from specialized contractors.

D. Protecting Resources and Preserving Capabilities

In the event of a slowly developing emergency, it is possible that utilities may be able to mitigate some of the effects of a major emergency or disaster by protecting key facilities and equipment.

1. In the face of a threat of flooding, facilities may be protected by constructing dikes, sand-bagging, or using pumps to prevent water from entering the facility. In an effort to preserve pumps, electrical control panels, and other vital equipment, it may also be prudent in some cases to remove the equipment from facilities to prevent damage due to rising water.
2. Loss of power could severely affect critical functions such as communications, water pumping, purification and distribution, wastewater disposal, traffic control and operation of critical medical equipment. Critical facilities that require back-up electrical power should have appropriate generation equipment on site. If this is not feasible, emergency generator requirements should be pre-determined to facilitate timely arrangements for such equipment during emergency situations. Appendix 3 provides forms to record information on existing backup generators and to identify requirements for additional emergency generators.

E. Utility Support for Emergency Response Operations

The assistance of utility providers may be needed to support other emergency response and recovery operations. Such assistance may include:

1. Rendering downed or damaged electric lines safe to facilitate debris removal from roadways.
2. Cutting off utilities to facilitate the emergency response to fires, explosions, building collapses, and other emergency situations.
3. Facilitating search and rescue operations by cutting off electrical power, gas, and water to areas to be searched.
4. Establishing temporary utility hookups to facilitate response activities.

F. Utility Support for Disaster Recovery Operations

Utilities play a primary role in the recovery process relating to:

1. Rendering electrical lines and gas distribution lines safe before local officials authorize re-entry of property owners into affected areas to salvage belongings and/or repair damage to their homes and businesses.
2. Participating in inspections of affected structures to identify hazards created by damaged utilities and eliminating those hazards.
3. Restoring utility systems to their pre-disaster condition.

G. Public Information

1. It is essential to provide the public information on utility status, the anticipated time it will take to restore service, recommendations on dealing with the consequences of a utility outage, conservation measures, and information on sources of essential life support items. Public information relating to utility outages should be developed by the

utility/utilities affected to ensure that messages are accurate and consistent.

2. In some emergency situations, many of the normal means of disseminating public information may be unavailable and alternative methods of getting information out to the public will be necessary.
3. Utilities are complex systems and service may be restored on a patchwork basis as damaged components are repaired or replaced. Some neighborhoods may have utility service restored while adjacent neighborhoods may not.

H. Phases of Management

1. Mitigation

- a. Review proposed utility construction or renovation activities to determine if existing hazards will be increased by such activities.
- b. Utilities should assess the vulnerability of their systems to known hazards and take action to lessen such vulnerability.
- c. Maintain portable generators and pumps to meet unexpected needs and/or identify sources for such equipment that can be accessed during an emergency.

2. Preparedness

- a. Work with utilities to identify damage assessment information they can normally provide in an emergency.
- b. Ensure the EOC has emergency contact numbers for utilities serving customers in the City.
- c. Request that utilities brief the EOC staff on their emergency service restoration plans periodically.
- d. Encourage utilities to participate in drills and exercises conducted by the City.
- e. Utilities should ensure emergency plans are up-to-date and equipment is in good repair and secure.
- f. Appropriate form(s) in Appendix 3 of this annex should be completed so the information is available, if needed, during the response.

3. Response

- a. Coordinate with utility companies to obtain regular reports on their operational status, number of customers affected by service outages and areas affected. Representatives from PW&E, Southwestern Bell and CenterPoint Energy may be present in the EOC.

- b. Provide expedient substitutes for inoperable utilities at critical facilities to the extent possible or relocate those facilities if necessary. Update utility restoration priorities for critical facilities as necessary.
 - c. If an extended utility outage is anticipated, take those actions necessary to protect public health and safety, private and public property and implement utility conservation measures.
 - d. Facilitate utility emergency response to the extent possible.
 - e. Include utility status information in the Situation Reports produced during major emergencies and disasters.
- 4. Recovery
 - a. Request regular reports concerning the operational status, the number of customers affected by service outages and areas affected for utilities with system damage.
 - b. Obtain estimates of damages for inclusion in the City's requests for disaster assistance.
 - c. Update utility restoration priorities for critical facilities as appropriate.
 - d. Request utilities that participate in major emergency operations to participate in any post-incident review of such operations.

VI. ORGANIZATION & ASSIGNMENT OF RESPONSIBILITIES

A. Organization

- 1. City owned water and wastewater operations and facilities will be managed by PW&E.
- 2. Utilities not owned and operated by the City will be managed by those organizations based upon their respective Emergency Management Plans.

B. Assignment of Responsibilities

- 1. See City's Emergency Management Plan.
- 2. Non-City owned and operated utilities will be responsible for the maintenance, repair and restoration of their respective utilities.
- 3. The Public Information Officer will:

Coordinate with the EOC and utilities representatives to provide timely, accurate, and consistent information to the public regarding utility outages, including communicating:

 - a. Protective measures, such as "boil water" orders.
 - b. Conservation guidance.
 - c. Instructions, including where to obtain water, ice, and other essentials.

VII. DIRECTION & CONTROL

- A. The EOC will monitor utility response and recovery operations regarding major utility interruptions that may affect public health and safety or threaten public or private property.
- B. Each utility organization, both City and privately owned and operated, will direct its response and recovery activities.
- C. Utility crews responding from other geographical areas pursuant to a utility mutual aid agreement and contractors hired by utilities to make repairs will normally receive their assignments from the utility that summoned or hired them.
- D. Lines of Succession
 - 1. City owned and operated utility: See City's Emergency Management Plan.
 - 2. To be determined by each privately owned and operated utility.

VIII. READINESS LEVELS

See City's Emergency Management Plan.

IX. ADMINISTRATION & SUPPORT

- A. Resource Support and Readiness
 - 1. In general, utilities are responsible for obtaining and employing the resources needed to make repairs to or reconstruct their systems.
 - a. The City may commit its non-utility resources to assist the utilities it owns or operates in responding to emergency situations.
 - b. Privately owned utility companies are expected to use their organic resources and additional resources obtained through mutual aid or by contracting to respond to emergency situations.
 - c. Although the City may not use its resources to perform repair work for privately owned utilities, it may take certain actions to facilitate the response of utilities, whether public or private, to an emergency situation.
 - 2. See City's Emergency Management Plan for requesting assistance.
- B. Coordination

During emergency situations involving utility outages, the EOC will maintain communications with utility companies and when the City EOC is operational, it will serve as the focal point for coordination between the City and utilities.
- C. Critical Facilities List

Refer to section V.A.4 and Appendix 2 of this annex.

D. Reporting

During major emergencies, the EOC will coordinate with utilities serving the City to obtain information on their operational status, the number of customers and areas affected, and the estimated time for restoration of service.

E. Records

See City's Emergency Management Plan.

F. Post-Incident Review

See City's Emergency Management Plan.

X. ANNEX DEVELOPMENT & MAINTENANCE

A. The EMC is responsible for developing and maintaining this annex.

B. This annex will be reviewed annually and updated every five (5) year or sooner, if necessary.

C. Departments and agencies tasked in this annex will develop SOG that address assigned tasks.

XI. REFERENCES

A. Annex L, Energy & Utilities, to the *State of Texas Emergency Management Plan*

B. FEMA, Guide for All-Hazard Emergency Operations Planning (SLG-101)

C. DEM, Disaster Recovery Texas Manual (DEM-62)

APPENDICES

Appendix 1	Local Utility Information & Service Area Maps
Appendix 2	Utility Restoration Priorities for Critical Facilities
Appendix 3.....	Emergency Generator Forms
Appendix 4.....	Utility Conservation Measures

Appendix 1 to Annex L

LOCAL UTILITY INFORMATION

1. Electric

CenterPoint Energy, its mutual aid electric companies and private contractors, would be responsible for repair, restoration and maintenance of its infrastructure should an emergency or disaster damage it.

24-Hour Emergency Contact Information is maintained by OEM.

2. Telephone

Southwestern Bell, its mutual aid telephone companies and private contractors would be responsible for repair, restoration and maintenance of its infrastructure should an emergency or disaster damage it.

Cingular Wireless is the City's provider of cellular service and would be responsible for repair, restoration and maintenance of its infrastructure.

24-Hour Emergency Contact Information is maintained by OEM.

3. Natural Gas

CenterPoint Energy, its mutual aid natural gas companies and private contractors would be responsible for repair, restoration and maintenance of its infrastructure should an emergency or disaster damage it.

24-Hour Emergency Contact Information is maintained by OEM.

4. Water

Owned by the City of Houston and operated by PW&E Department-Public Utilities Division, Water Production Branch.

24-Hour Emergency Contact Information is maintained by OEM.

5. Wastewater

Owned by the City of Houston and operated by PW&E Department-Public Utilities Division, Wastewater Operations Branch.

24-Hour Emergency Contact Information is maintained by OEM.

Appendix 1 to Annex L

LOCAL UTILITY SERVICE AREA MAP(S)

OEM maintains a copy of the service area maps for CenterPoint Energy (electrical and gas) Southwestern Bell Telephone. Since the water and wastewater systems are owned and operated by the City of Houston, Public Works and Engineering , they maintain the necessary maps of their systems.

Appendix 2 to Annex L

UTILITY RESTORATION PRIORITIES FOR CRITICAL FACILITIES

Refer to the **Code Blue Book**. This book contains a listing of utility restoration priorities for critical facilities, emergency notification procedures, emergency telephone numbers and designated emergency points of contact. Participating utilities include PW&E's Public Utilities Division (water and wastewater branches) and Utility Maintenance Division, CenterPoint Energy and Southwestern Bell Telephone. A copy of the **Code Blue Book** is kept on file in Houston's Office of Emergency Management and the agencies identified above.

Appendix 3 to Annex L

EMERGENCY GENERATOR FORMS

1. The emergency generator forms which follow are provided to facilitate pre-planning for emergency generator requirements, either to obtain a generator which does not have one or replace an existing generator which has failed.

The Emergency Generator Information – Existing Installation form should be used to record information on existing emergency generators in case they must be replaced.

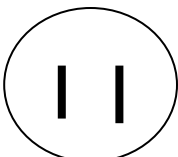
The Emergency Generator Information – Additional Equipment form should be used to identify requirements for additional emergency generators for critical facilities that do not currently have such generators.

2. Forms should be completed by the owner or operator of the facility that has or may need a generator and provided to the local EMC. A separate form should be completed for each existing generator or additional generator that is required. The EMC will maintain completed forms for use during emergencies. It is suggested that individuals completing these forms retain a copy for their own records.
3. In completing these forms, keep the following in mind:
 - A. If in doubt about what type of capability is needed, consult a qualified electrician.
 - B. Generators are often quite heavy and should be placed on a firm, level site, and preferably a paved area.
 - C. A forklift is normally used to place a skid-mounted generator. The forklift operator must have adequate room to maneuver.
 - D. In considering emergency generator siting, remember that generators are often noisy and produce exhaust fumes that may be sucked into nearby ventilation intakes. Vehicle access will be needed to refuel.

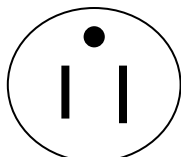
Appendix 3 to Annex L

EMERGENCY GENERATOR INFORMATION (Existing Installation)

1	Facility Name:
2	Facility Address:
3	Facility Type: <input type="checkbox"/> EOC <input type="checkbox"/> Communications Ctr <input type="checkbox"/> Medical Facility <input type="checkbox"/> Fuel Facility <input type="checkbox"/> Law Enforcement <input type="checkbox"/> Fire/Rescue Facility <input type="checkbox"/> EMS Facility <input type="checkbox"/> Water Pumping /Treatment <input type="checkbox"/> Wastewater Pumping/Treatment <input type="checkbox"/> Other (specify)
4	Facility Point of Contact: Phone:
5	If more than one generator exists, provide generator number or location within facility:
6	Electrical Requirements; Kilowatts: Volts: Amperes: Phase: <input type="checkbox"/> Single <input type="checkbox"/> 3-Phase Wye <input type="checkbox"/> 3-Phase Delta <input type="checkbox"/> Other:
7	Fuel: <input type="checkbox"/> Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Propane <input type="checkbox"/> Other:
8	Fuel Tank Size: Gallons: Pounds:
9	Fuel Tank Type: <input type="checkbox"/> Attached to generator <input type="checkbox"/> Separate tank
10	Generator Weight: <input type="checkbox"/> Pounds: <input type="checkbox"/> Tons:
11	Starting: <input type="checkbox"/> Automatic <input type="checkbox"/> Manual/Recoil <input type="checkbox"/> Other:
12	Generator Support: <input type="checkbox"/> Pad/Permanent Installation <input type="checkbox"/> Skid <input type="checkbox"/> Trailer
13	Generator in Weather Housing: <input type="checkbox"/> Yes <input type="checkbox"/> No
14	Electrician On-site or Available: <input type="checkbox"/> Yes <input type="checkbox"/> No
15	Is Generator Hard Wired to Electrical System? <input type="checkbox"/> Yes <input type="checkbox"/> No
16	Generator Receptacles Required (indicate numbers and types; see illustrations below):
17	Other Pertinent Information:



15A-125V
NEMA 1-15R



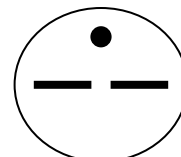
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NEMA 5-15R



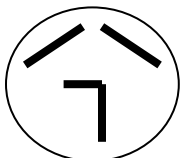
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NEMA 5-20R



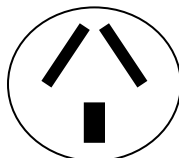
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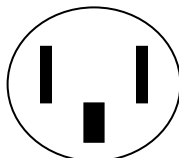
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NEMA 6-30R



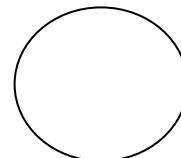
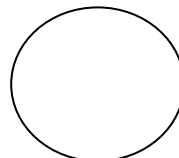
30A-125/250V
NEMA 5-30R



50A-125/250V
NEMA 10-50R



50A-250V
NEMA 6-50R

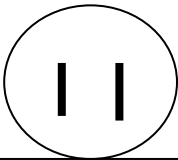


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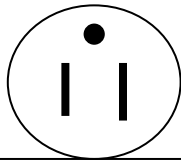
Appendix 3 to Annex L

EMERGENCY GENERATOR INFORMATION (Additional Equipment)

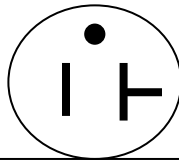
1	Facility Name:
2	Facility Address:
3	Facility Type: <input type="checkbox"/> EOC <input type="checkbox"/> Communications Ctr <input type="checkbox"/> Medical Facility <input type="checkbox"/> Fuel Facility <input type="checkbox"/> Law Enforcement <input type="checkbox"/> Fire/Rescue Facility <input type="checkbox"/> EMS Facility <input type="checkbox"/> Water Pumping /Treatment <input type="checkbox"/> Wastewater Pumping/Treatment <input type="checkbox"/> Other (specify) _____
4	Facility Point of Contact: _____ Phone: _____
5	Electrical Requirements: Kilowatts: _____ Volts: _____ Amperes: _____ Phase: <input type="checkbox"/> Single <input type="checkbox"/> 3-Phase Wye <input type="checkbox"/> 3-Phase Delta <input type="checkbox"/> Other: _____
6	Fuel Available: <input type="checkbox"/> Gas <input type="checkbox"/> Diesel <input type="checkbox"/> Propane <input type="checkbox"/> Other: _____
7	Site Access: Site accessible for emplacing trailer-mounted unit? <input type="checkbox"/> Yes <input type="checkbox"/> No Site accessible for unloading/positioning skid-mounted unit? <input type="checkbox"/> Yes <input type="checkbox"/> No
14	Electrician On-site or Available: <input type="checkbox"/> Yes <input type="checkbox"/> No
16	Generator Receptacles Needed (indicate numbers and types; see illustrations below):
17	Other Pertinent Information:



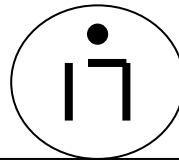
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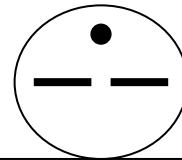
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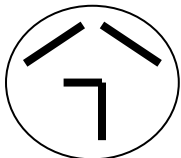
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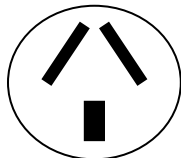
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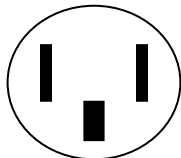
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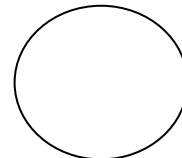
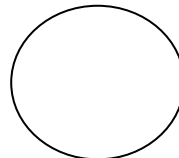
30A-125/250V
NEMA 5-30R



50A-125/250V
NEMA 10-50R



50A-250V
NEMA 6-50R



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Appendix 4 to Annex L

UTILITY CONSERVATION MEASURES

The utility conservation measures outlined in this appendix are suggested measures. The specific measures to be implemented should be agreed upon by the City and the utilities concerned.

I. Conservation Measures for Natural Gas

A. Step 1. Discontinue:

1. Use of gas-fueled air conditioning systems except where necessary to maintain the operation of critical equipment.
2. All residential uses of natural gas, except refrigeration, cooking, heating, and heating water.
3. Use of gas-fueled clothes dryers.

B. Step 2. Reduce:

1. Thermostat settings for gas-heated buildings to 65 degrees during the day and 50 degrees at night.
2. Use of hot water from gas-fueled water heaters.

II. Conservation Measures for Electric Power

A. Step 1. Discontinue:

1. All advertising, decorative, or display lighting.
2. Use of electric air conditioning systems except where necessary to maintain the operation of critical equipment.
3. Use of electric ovens and electric clothes dryers.
4. Use of all residential electric appliances, except those needed to store or cook food and televisions and radios.

B. Step 2. Reduce:

1. Reduce thermostat setting for electrically heated buildings to a maximum of 65 degrees during the day and 50 degrees at night.
2. Minimize use of hot water in buildings that use electric water heaters.
3. Reduce both public and private outdoor lighting.
4. Reduce lighting by 50 percent in homes, commercial establishments, and public buildings.

C. Step 3. Cut off electricity to:

1. Non-essential public facilities.
2. Recreational facilities and places of amusement such as theaters.

- D. Step 4. Cut off electricity to:
 - 1. Retail stores, offices, businesses, and warehouses, except those that distribute food, fuel, water, ice, pharmaceuticals, and medical supplies.
 - 2. Industrial facilities that manufacture, process, or store goods other than food, ice, fuel, pharmaceuticals, or medical supplies or are determined to be essential to the response and recovery process.
 - 3. Office buildings except those that house agencies or organizations providing essential services.

III. Water Conservation Measures

- A. Step 1.
 - 1. Restrict or prohibit outdoor watering and washing of cars.
 - 2. Close car washes.
- B. Step 2
 - 1. Restrict or curtail water service to large industrial users, except those that provide essential goods and services.
 - 2. Restrict or prohibit use of public water supplies for irrigation and filling of swimming pools.
 - 3. Place limits on residential water use.
- C. Step 3
 - 1. Restrict or cut off water service to industrial facilities not previously addressed, except those that provide essential goods and services.
 - 2. Restrict or cut off water service to offices and commercial establishments, except those that provide essential goods and services.
- D. Step 4
 - 1. Restrict or curtail residential water use.